Regional Municipality of Ottawa-Carleton
222 Queen Street
Ottawa Ontario K1P 5Z3

Planning Department

Municipalité régionale d'Ottawa-Carleton
222, rue Queen
Ottawa (Ontario) K1P 5Z3

Service de l'urbanisme

26 Jun 84

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REPORT TO PLANNING COMMITTEE

REGIONAL DEVELOPMENT STRATEGY:
CONCLUSIONS AND RECOMMENDATIONS

EXECUTIVE SUMMARY

In early March, Planning Committee received, and authorized for distribution, a staff report on the Regional Development Strategy (discussion paper). The Regional Development Strategy is viewed as the first of two stages in the Regional Official Plan review exercise.

That discussion paper was circulated to area municipalities, agencies, individuals and community groups. And during March, April and May, staff made a series of presentations to municipal staffs, councils, and community groups to elaborate on the discussion paper and provide additional detail.

A public hearing was held before the Planning Committee on 29 May 84 and approximately fifty submissions were received.

A separate report (consisting of four volumes) has been prepared to provide a copy of each brief and the staff response to the points raised in those briefs.

The attached report, drawing upon the issues raised during the progress of public consultation, presents a discussion of major strategic decisions and offers eleven specific recommendations for future consideration by the Planning Committee (recommendations at page 16).

Also tabled with the Committee is a report (dated 22 May 84) on future public consultation activities related to the review of these recommendations by the public prior to their consideration by the Committee (in either one or three months time).

J.M. Wright
Planning Commissioner

Regional Municipality
of Ottawa-Carleton
222 Queen Street
Ottawa Ontario K1P 5Z3

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REGIONAL DEVELOPMENT STRATEGY: CONCLUSIONS AND RECOMMENDATIONS

BACKGROUND

On 6 Mar 84, a discussion paper entitled Regional Development Strategy (March 84) was presented to the Planning Committee which authorized its release for public review. Copies of the paper were distributed to community groups, individuals, area municipal staffs, public and private agencies. During March, April and May, the planning staff made numerous presentations before local councils, community groups, and agencies discussing the conclusions of the paper and providing additional information.

On 29 May 84, a public hearing was held before the Planning Committee. Approximately 50 briefs were presented at or before this hearing.

The planning staff were directed to reflect upon the submissions received and bring forward a second report.

PURPOSE

The purpose of this report is to bring forward recommendations on the conclusions reached in the Regional Development Strategy paper in light of the issues raised at the public hearing. This report does not reiterate the material provided in the discussion paper; rather it builds upon it to arrive at specific recommendations.

Accompanying this report is a separate report of the public hearing comprising four volumes. Three volumes contain copies of each brief with numbers added in the margins of the text at each point where the staff have prepared a specific response. The fourth (companion) volume contains the staff response to the points raised in the briefs - with an introductory section which discusses a number of major issues that were common to several briefs. This present report draws upon the material produced in those volumes.

The Regional Official Plan Review project has been conceived as consisting of two stages (refer to Figure 2 of the March 84 discussion paper). The first stage concerns itself with the broad question of amount and location of urban and rural growth to 2001.

The underlying principle of a two staged process is to allow certain decisions to be reached early in the review so that, in the subsequent stage, the policy options that are to be examined can be narrowed down. This should provide more structure to the review process and keep the second stage as uncluttered as possible.

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It is the purpose of this report to make recommendations where the staff are confident decisions can be made, and to defer other issues to the second stage of the Official Plan Review.

PROCESS

Also tabled with Planning Committee is a report on the public consultation process and where it should proceed from now. The original timetable has been altered from that published with the Regional Development Strategy discussion paper to provide an extra month of public review before the hearing (which was rescheduled to 29 May 83). The schedule calls for the production of staff recommendations and the distribution of these to the public for review.

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The Planning Committee will need to decide an appropriate length of time for public review of this report. The current schedule calls for consideration of the staff recommendations by the Planning Committee at the end of July.

Following the Committee's consideration, it is possible that the recommendations of the Committee could be amalgamated with the material contained in the Regional Development Strategy discussion paper, together with a precis of the public consultation program, so that a comprehensive report may be presented to Council.

STRATEGIC DECISIONS

The issues raised in the Regional Development Strategy discussion paper appear complex since the basic parameters of urban growth (and development pattern) are highly interrelated. In trying to bring focus to these issues it is very tempting to fix on specific details. However, focussing too sharply on details at this stage may prevent effective consideration of larger structures and systems at work within the urban and rural development pattern (i.e. there is a danger of not seeing the forest for the trees).

Many of the questions and issues raised in the submissions at the 29 May public hearing related to details that need not be resolved at this first stage of the official plan review - important as they may be. For instance, a decision on the overall structure of the urban settlement pattern does not need to be held in abeyance as a result of uncertainty around the ultimate necessity or timing of particular transportation links where these are indicated as a common requirement of all optional strategies. By way of contrast, a decision on employment distribution as it affects system-wide transportation requirements is of strategic significance.

The number of strategic elements, and the decisions that need to be taken - though very important - are relatively few. This section of the report sets out major strategic issues that, once settled, would provide a good deal of structure for subsequent detailed policy formulation.

Growth Rate

The Regional Development Strategy discussion paper presented the conclusion that growth rate, per se, is not of strategic significance. This is an issue that was raised in several briefs and during public consultation following the release of the paper. And, it is an issue that has been addressed in the staff response to the briefs received at the public hearing.

The high-low range used for the official plan review exercise emerged from detailed analyses of past trends and future prospects regarding population and employment growth in Ottawa-Carleton. The population projection was discussed with the staffs of area municipalities and the National Capital Commission and a consensus emerged that the range selected was appropriate for the official plan review. It was a major task of the planning staff to select a growth range that was wide enough to accommodate reasonable futures but narrow enough to be of practical value to the planning exercise.

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Nothwithstanding this, several comments have been received during the public consultation process that the "high" is unrealistically high - and not a suitable basis for the review. In response, the planning staff advise that growth rates representing both the "high" and the "low" have been experienced in the past - and in fact for the past two years growth has been running at an annual rate 20% above the high.

The strategy discussion paper also highlights the close relationship between job creation and population growth in Ottawa-Carleton, the point being that the only sure-fire way to achieve the "low" would be to discourage in-migration through a dampening of job creation. This would represent a dramatic shift in the philosophy of Regional Council.

A second point to repeat is that two thirds of the infrastructure improvements (and their costs) that are mentioned in the strategy discussion paper relate to bringing existing infrastructure up to standard or to provide for "low" growth. The cost per capita for additional infrastructure then declines as growth approaches the "high" projection.

Notwithstanding current growth rates, or infrastructure requirements, however, the basic point to make is that the Regional Plan must provide instruction as to how the high level of growth would be accommodated - should it occur.

On this basis it is recommended that:

> **The Regional Development Strategy be prepared on the basis that Ottawa-Carleton could grow to between 625,000 and 725,000 persons by the turn of this century and that infrastructure be provided incrementally dependent upon the actual amount of growth which materializes through the planning period.**

Household Forecast and Suburban Residential Development

The Regional Development Strategy discussion paper summarized the planning staff's research on household trends and presented "high" and "low" projections of households and urban land requirements to 2001. The conclusion presented in the paper was that, under either projection, the majority of residential growth would occur outside the Greenbelt and in the case of the "high", lands in addition to those now designated in the Regional Plan (first stage) would be required. This basic conclusion was challenged during the progress of consultation and is one of the major issues addressed in the staff response to the briefs.

The thrust of the challenge was to the effect that this conclusion pandered to urban sprawl, did not take into account changing household requirements of an aging population, and represented an inefficient use of land.

The first point to be made is that the regional staff accept the counter position that intensification of use on urban lands - both inside and outside the Greenbelt - should be pursued to its practical limits and policies should be developed within the Regional Plan to encourage this. However, a careful re-examination of the household forecast and housing potential inside the Greenbelt reaffirms the basic conclusion presented in the discussion paper that substantial development beyond the Greenbelt will be required.

The household forecast calculated the number of new households which would be created under the high and low population projections - by age cohort, and by type. Under the high projection approximately 97,000 new households will be created by 2001 - assuming the propensities to form households - by age cohort - remain constant at 1981 levels (that is, a twenty-five year old, or a forty year old, or a sixty year old person will have the same likelihood of maintaining a separate household in 2001 as they did in 1981). Although propensities have been steadily increasing, the forecast assumes that these will now remain constant at 1981 levels (note: if propensities continue to increase, more than 97,000 new households would be formed).

Of these 97,000 new households, approximately 72,000 (74%) will be "family" households, and roughly speaking - if past trends prevail - 90% of these will locate in urban areas - some 65,000 - family households. By far the majority of "family" households have, in the past, gravitated to non-apartment structures (singles, semis, multiples). As a rough indicator, in 1981 the number of urban family households was approximately 128,300 households and the urban ground-oriented housing stock was approximately 135,100 units.

The calculation of urban land requirements presented in the Regional Development Strategy discussion paper was based on producing 56,400 ground-oriented units by 2001 - as against 65,000 new "family" households. If anything, the regional forecast is based on a conservative estimate of the likely need for ground-oriented housing, and represents a substantial shift towards proportionately more families (perhaps childless couples) occupying apartment stock than traditionally has been the rule.

As at December 1983, the unit potential of all vacant lands remaining inside the Greenbelt (parcels 2 acres or greater - comprising 3,160 hectares in total) was approximately 25,000 units of which approximately 12,000 are slated for ground-oriented housing. This falls 44,000 units short of the staff's estimate of ground-oriented housing requirements under the "high" projection. Under the "low" projection the shortfall would be approximately 29,000 ground-oriented units.

In a nutshell, the staff cannot see any way that the housing requirements of "family" households can be met inside the Greenbelt unless a wholesale shift in attitudes occurs or can be effected - away from the traditional preference of families for ground-oriented housing. The staff do not believe that the Regional Plan should be predicated on the assumption that this wholesale shift will occur as little evidence has been uncovered to suggest that a fundamental change is on the horizon.

Quite apart from the main conclusion that there will be a need for further development outside the Greenbelt to meet the housing requirements of an expanding urban population, there is the issue of sprawl that was raised in several briefs. This is another issue that is discussed in the staff response to the briefs received at the 29 May 84 public hearing.

Although more intense use of all urban lands is desirable, it is a bit unfair to point a finger at Kanata, Orleans, and Barrhaven as the culprits of high land consumption. The mix of medium and high density housing in these communities is generally higher than that in small centres around Metro Toronto, certainly higher than that which existed in Nepean and Gloucester (inside the Greenbelt) as these suburban areas were developing through the sixties and early seventies and higher than in Ottawa suburban areas such as Alta Vista, Heron Park, Hunt Club, Mooney's Bay etc. Further to this, the housing "mix" assumption used in the calculation of future land requirements consists of 21% single family housing, 9% semis, 32% multiples and 38% apartments. This, then, assumes that a large proportion of family households will be accommodated in ground-oriented housing - but at higher densities than just traditional single family subdivisions.

The rapid rise in land consumption (and decrease in population density) over the past decade has not resulted from declining development densities. Overall, the urban density as measured in units per hectare has increased (from 21.7 dwellings per residential hectare in 1971 to 25.6 dwellings per hectare in 1981). What has accounted for the declining population density is a remarkable drop in household size (number of persons per unit) - across all municipalities and all structure types (from 3.4 in 1971 to 2.6 in 1981).

The bottom line to all this is that the recent rapid growth in Kanata, Orleans and Barrhaven arose in response to the expanding housing requirements of the regional population. Upon careful examination there is no reason to believe the demand will not remain in the direction of ground-oriented housing and the bulk of this demand will need to be met on lands outside the Greenbelt.

On this basis it is recommended that:

> **The Regional Development Strategy be prepared on the basis that the majority of new households to 2001 will require low and medium density ground-oriented housing, the bulk of which will be accommodated on lands outside the Greenbelt.**

Designation of Additional Urban Lands

As of December 1983 there were approximately 3,160 hectares of vacant urban residential lands in Ottawa-Carleton, distributed approximately as follows: Kanata 38%; Orleans 36%; Barrhaven 6%; and areas inside the Greenbelt 20%. The lands included all those approved as the "first stage" of urban development in the 1974 Regional Plan. The unit potential of these lands approximated 80,500 units in the following proportions (roughly): singles and semis - 44,900 units; multiples - 19,200 units; and apartments - 16,400 units. In rough numbers then there is potential on these lands for 64,000 "ground-oriented" units.

Under the "high" projection, approximately 40,000 new "family" households will be formed by 1991 with another 32,500 "family" households being created between 1991 and 2001. The corresponding number of "non-family" households are 14,250 to 1991 and 10,600 from 1991 to 2001. Roughly 90% of these households will locate in urban areas - if past trends prevail.

What these numbers suggest is that assuming growth occurs at the level of the "high" projection, the vacant land supply (for ground-oriented units) will be exhausted somtime between 1991 and 2001 if "family" households continue with their preference for ground-oriented units. And it can be expected that the supply would become "tight" long before that time as a result of corporate, institutional, or physical barriers to bringing on certain parcels for development. This suggests that lands in addition to those now available for residential development will be needed to ensure an orderly and competitive land market through to 2001. Further to this, the Regional Plan should not be based on arriving at 2001 with no remaining vacant land given the long lead time involved in the preparation of official plans.

The position taken in the strategy discussion paper was criticized for not considering the "redevelopment" potential of the inner area. It is the planning staff's view that although a vigorous program of redevelopment could provide additional units (i.e. not all construction need take place on vacant lands), redevelopment cannot be looked to as a solution for providing the ground-oriented units which make up a large part of the forecast. This is an issue which is discussed in the staff response to the briefs.

It can be argued that since all of the foregoing is based on the "high" projection it distorts the picture by hinting at a degree of urgency for more land that may later prove to be unwarranted. However, regardless of the actual growth that is realized in Ottawa-Carleton to 2001, the regional development strategy must provide direction as to how the housing requirements of the high projection will be met - if growth at the high level occurs.

On this basis it is recommended that:

The Regional Development Strategy be based on the designation of sufficient additional urban lands to meet the high growth projection to 2001.

Location of Additional Land

In recognition of the requirement for additional urban land outside the Greenbelt (which could emerge as a critical issue in the early nineties if a high rate of growth is realized) the Regional Development Strategy discussion paper presented the conclusion that growth south of the Greenbelt was preferable to growth east or west. Two basic supporting reasons were offered.

First, at a fundamental level, there appeared to be some benefit to balancing development around the periphery of the Greenbelt so as to reduce stress in the east-west transportation axis (especially the Queensway corridor). Related to this, growth in the south would provide the impetus for a second east-west facility (such as the Inner Ring road) which could facilitate south-to-west and south-to-east movements (it would also divert a small share of the through traffic away from the Queensway).

The second reason was the relatively low cost of providing infrastructure to a growth centre south of the Greenbelt - with the proviso that the 416 freeway facility was built by the Province and the amount of growth was relatively limited (less than 40,000 additional people).

The strategy paper however did not conclude on the best location or configuration for such development - rather the conclusion was that a separate detailed study was required to examine options south of the Greenbelt between 417 in the east and the proposed 416 in the west. The paper also raised the possibility of more than one centre, pending the results of the subsequent study.

There were four basic challenges to these conclusions. First, there was the issue of whether additional lands were needed at all. This has been discussed above - the planning staff confirming their conclusion and recommending the designation of additional lands.

The second dealt with the potential impact southerly growth would have on the Queensway corridor since there is a planned connection of 416 to the Queensway (at Acres Road). The short answer is that growth south, east, or west of the Greenbelt places additional strains on east-west roadways - but a south growth option creates the least impact in this respect.

The third challenge related to the relative merits of expanding Kanata and Orleans as against providing additional lands south of the Greenbelt. This is an issue which is examined in the planning staff response to the briefs.

The basic argument for directing growth south as opposed to expanding Orleans and Kanata is to balance traffic generation around the periphery of the Greenbelt. Over time, as the communities mature, this will provide the impetus for interaction between them creating traffic that is not directed through the central core. Once the south has been brought up to a substantial size, a future planning exercise can re-evaluate each of the communities to determine the relative merits of future expansion in each location.

The fourth challenge was related to the impact of an additional growth centre on the ability of Orleans and Kanata to reach a "critical mass". It was argued that a southerly community would offer competition for jobs, delay the provision of community facilities, and spread scarce infrastructure dollars too thinly (perhaps delaying the transitways or road improvements to the east and west communities).

This is one of the major issues dealt with in the staff response to the briefs. Although the staff could not come to a definitive conclusion on this issue, it would appear that a community size of approximately 75,000 would provide the "critical mass" for virtually all facilities (with the exception of a major full-line department store) and provide a reasonable guaranty of establishing a good employment base. However, the planning and servicing of the third growth area should not be held off until Kanata and Orleans reach 75,000 since the supply of low and medium density lands would be virtually exhausted by then.

Although it may not be appropriate to hold off the south until a population of 75,000 is reached in both Orleans and Kanata, it may be possible to select an appropriate "trigger" for the release of the southerly growth area. This is an issue which could be explored in the second stage of the official plan review. The "trigger" might consist of several factors including the population size and population/employment ratio of Orleans and Kanata and the remaining supply of low density residential land.

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It is therefore recommended that:

The Regional Development Strategy be based on the premise that a major growth centre (or centres) will be developed south of the Greenbelt; the future location, configuration, and the timing of its (their) release to be the subject of further study.

Transit Priority

There was no strong challenge to the position taken in the Regional Development Strategy discussion paper that continuing emphasis should be placed on public transit. By way of contrast there were numerous briefs in opposition to specific roadway improvements. The discussion paper highlights the achievements to date in attracting transit ridership and proposes that the current modal split guidelines as contained in the 1974 Regional Plan (the proportion of trips made by transit) be raised - in most instances.

The benefits of achieving higher modal split are increased operational efficiency of the transit system, the potential for improving off-peak level of service, and a reduction in new roadway requirements.

As yet to be worked out are the specific policies that will ensure increased modal split. What has been raised in several briefs is the importance of advancing the rapid transit program such that the transitways are extended to the Orleans and Kanata town centres at an early date. To achieve this would require a reshuffling of the transitway construction schedule. Although the staff are not yet sufficiently prepared to make a specific recommendation on changes to the transitway program, it is recommended that:

The Regional Development Strategy be based in general on achieving, or surpassing, the modal split guidelines contained in the 1974 Regional Plan.

Employment Decentralization

The Regional Development Strategy discussion paper takes the position that employment growth in the central area should be limited to the capacity of the transportation network and that there would be advantages to encouraging new employment to locate in suburban centres along the transitways and in the town centres of the urban communities outside the Greenbelt. The advantages of this distribution are: to reduce new roadway construction within inner urban neighbourhoods and the central area; and to promote transit usage (which in turn improves the operational efficiency of the transit system and further reduces roadway requirements).

Several submissions before the May 29th public hearing and comments received during the consultation process probed the soundness of this strategy, and in general, three different opinions emerged.

First, there was the position put forward that the ceiling on central area employment should be removed - or raised. And here it is important to emphasize that the existing Regional Plan does not set a specific numerical limit on central area employment - although 100,000 employees was given as an illustration. The point made in the Plan is that the central area would decline in its share of total employment and should not

be allowed to produce peak hour traffic volumes that would exceed the capacity of the transportation system. Currently central area employment is approximately 70,000.

The staff of the Transportation Department advise that based on the recent testing exercise 100,000 to 110,000 employees can be accommodated in the central area. However, this is on the basis that peak hour modal split on the Rideau Canal screenline can be raised from its current 38% to 50% (and the CPR screenline from 44% to 50%) and it may require the Queensway collector/distributor system to be constructed. This also assumes that all of the roads feeding the bridges across the canal and railway tracks can match the capacity of the bridges making up the screenline capacity. It also assumes that the full capacity of all of the bridges is available at the same time. The bottom line here is that 100,000+ employees is still theoretically achievable - assuming modal split can be raised and the Queensway distributor collector systems is built - but this will result in pushing the capacity of the transit and road system to its limit.

On the other side of the coin, there are ways to increase the employment capacity of the central area that do not require additional transportation capacity. The first of these is to increase the size of the employed labour force living within the central area (i.e. persons able to walk or cycle to work). In this regard, the tests run by the Transportation Department (on which the 100,000+ employee limit was confirmed) included a net increase of 2,275 dwelling units (3,200 people) in the central area. This represents an 85% increase in dwelling units (and approximately 80% increase in population), and can be compared to the 1976-81 experience which saw an increase of 450 dwelling units in the central area. The point here is that the 100,000+ limit already assumes a fair increase in central area residential units and substantial additions to this would be required in order to increase the employment limit of the central area.

Another avenue available for increasing employment levels is to shift away from office employment towards retail or other employment that does not share the same work-day cycle (i.e. does not contribute to the morning and evening peak hour traffic volumes).

The bottom line appears to be that a ceiling of 100,000+ employees is theoretically achievable in the central area but considerable effort will be needed in one or more of several directions before that limit can become a practical reality (increased modal split, new Queenway collector/ distributor system, more residential development, shift in employment type).

In contrast to the above, a completely opposite opinion was expressed in several briefs to the effect that the level of employment growth in the central area should be controlled (i.e. by way of Regional Plan policy) to encourage employment growth in the urban communities outside the Greenbelt (i.e. lower the central area employment ceiling).

The benefits of a strong employment base in these communities were highlighted in the Regional Development Strategy discussion paper. With a strong employment base outside the Greenbelt, the traffic volume in the peak direction during rush hour is reduced - thereby minimizing roadway requirements through (and inside) the Greenbelt. For instance, a population

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of 100,000 could be supported in Orleans with very little requirement for additional road capacity if an employment level of 35,000 jobs is achieved (and the new modal split guidelines were obtained).

In a nutshell, there are increasing problems to be overcome as employment levels are raised inside the central area, and decreasing problems as employment levels are raised in the urban communities outside the Greenbelt.

There was a third opinion expressed regarding employment distribution and this challenged the conclusion reached in the Regional Development Strategy discussion paper that employment growth outside the central area should be focussed on selected nodes along the transitways.

The view was held in several briefs that a policy of focussing employment growth on transitway stations should not be pursued to the exclusion of other important employment areas outside the central area - presently or potentially well served by transit but not on the transitway.

The staff agree that there may be limited potential at certain transitway stations for developing a substantial employment node and that there are other employment areas not along the transitways that can, or should, be served by a high level of transit service. However some, though not exclusive, emphasis should be given to concentrating employment at nodes along the transitway where practical, with the town centres of Orleans and Kanata being critical nodes.

It is therefore recommended that:

The Regional Development Strategy be based on shifting the emphasis of employment growth away from the Central Area to other employment centres - with special emphasis on selected nodes along the transitway and the urban communities outside the Greenbelt.

Infrastructure Program

A substantial portion of the Regional Development Strategy discussion paper deals with the regional infrastructure that will be required to 2001 (sewer, water, roads and transitways). In this regard, there were three basic questions raised in the briefs and during the public consultation process relating to infrastructure.

The first, was a questioning of the need for basing the development strategy on a phasing out of the Watts Creek sewage treatment plan - and redirecting all sewage flows to the Green Creek Pollution Control Centre.

Staff of the Works Department advise that the expansion potential of the Watts Creek plant is limited. The original west plant could be reopened at a cost of $1.5M and the existing plant could be twinned at a cost of $9.0M. However, taken together this would only handle the flow from a population of approximately 60,000 persons. Since the plant takes flows from Kanata, Stittsville, Richmond and the west part of Nepean, this does not provide for much growth. And then, having spent the money to expand the Watts Creek Plant, connection through to Green's Creek would be required to provide for additional growth in the west (i.e. by extending the Lynwood collector).

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The second concern related to advancing the construction of the western and eastern transitways to Kanata or Orleans. It was argued that this would help relieve congestion on the roadways (especially in the east) and provide impetus to employment growth in the urban communities.

This issue was touched upon earlier in this report. Staff are not prepared at this time to recommend changes to the current transitway development schedule but it is an issue which can be resolved during the second stage of the official plan review.

The third issue which provoked strong reaction from several community groups related to specific roadways. Questions were raised as to the necessity and timing of new roadway facilities (eg. Britannia Arterial, Vanier Parkway extension) or widenings (eg. Fisher Avenue).

The report of the Transportation Department entitled Transportation Component of the Regional Development Strategy presented two basic lists of possible improvements to the transportation system. The first list (consisting of Tables 4 and 5 at pages 23 to 25 in that report) gave the transitway construction elements and roadway improvements needed to bring existing conditions up to standard. In total this list consisted of $200M worth of transitway projects and $155M of roadway projects.

It should be pointed out that this list, common to all options tested and not dependent on growth level, includes a number of high profile projects which can be expected to generate considerable public debate (eg. extension of Vanier Parkway, reconstruction of Prince of Wales Drive, widening of Walkley Road, widening of Hunt Club Road, widening of Fisher Avenue, the transitway construction program etc).

The important consideration for this stage in the official plan review is that decisions on the regional development strategy should not be held in abeyance on the basis of debate over road works which are not dependent upon which strategy is chosen.

The second list consists of the roadway and transitway elements that are required as a result of growth. These are presented in Table 4 (transit) and Table 6 (roads) of the Transportation Department's report. With respect to the transitways, the only difference between all "high" options is the possible need for a transitway to the south for those options based on a south urban community (H7 and H8).

With respect to roads the majority of new roads are common to all "high" options - that is they will be needed wherever growth is located. This includes such items as the Blackburn Hamlet Bypass, the Preston/Chaudière connection, Hunt Club Road extension to 417 etc. The new roads dependent on the location of growth (as opposed to amount) include the Britannia Arterial - only to the extent of whether a 2 or 4 lane facility is indicated, a widening of the Fenbank-Richmond connection (once built), the Ottawa River Parkway East, the widening of Regional Road 248, and a Walkley - Hunt Club link. Taken together, these five projects are the total difference between all the "high" options with respect to potential new roadway requirements.

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Further, of these five projects, the direction that the regional development strategy discussion paper was leaning towards is an option that shows no requirements for any of these five road projects (discussed below under evaluation of options).

The bottom line is that the majority of transit and road projects are either not related to growth or are common to all the "high" options tested. The necessity and timing of all these projects can be firmed up in the second stage of the official plan review (when the road schedules to the Regional Plan are reviewed in detail).

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On this basis it is recommended that:

Decisions on the Regional Development Strategy not be held in abeyance pending a review of the necessity or timing of individual infrastructure elements, but that these be reviewed in detail in the second stage of the official plan review.

Urban Settlement Pattern - Evaluation of Options

As part of the official plan review research leading up to the publication of the Regional Development Strategy discussion paper various optional distributions of population and employment growth were postulated. These so-called "options" were presented in a document entitled Options for Future Growth Ottawa-Carleton, 1981-2001 published in April of 1983. These options were used as the basis for road and transit analyses undertaken by staff under the aegis of an ACPAT subcommitte with representatives from RMOC, NCC, the Ministry of Transportation and Communications (Toronto and Kingston) and the Ministry of Municipal Affairs and Housing (Toronto and Ottawa). The options were also given to the Works Department as the basis for preparing cost estimates of the infrastructure (sewer and water) that would be required to accommodate each option.

It was not the purpose of the options' analyses to "pick" a single winner - but to determine the effect of such things as centralized vs decentralized employment; three population centres outside the Greenbelt vs two etc. And, the conclusions presented in the strategy paper were not based on a single option, but an amalgamation of the advantages of several. In the context of the discussive format of the strategy paper, the details of the evaluation were not presented in preference to highlighting the main conclusions from the exercise.

The strategy discussion paper was criticized for not presenting the results of the options evaluation. Accordingly, a profile of each option, a description of the evaluation measures, and the evaluation results are herein produced as Annex 1 to this report.

From the long list of evaluation measures several key items were highlighted in the strategy report. First was future roadway capacity deficiencies. The measure was used to illustrate the importance of decentralizing employment on reducing the requirements for new roads. The option labelled H8 (in Annex 1) emphasized job growth outside the central area but inside the Greenbelt. Option H6 placed emphasis on achieving the 1974 Regional Plan expectations of 35,000 jobs in Orleans and Kanata. Both H8 and H6 result in an overall reduction in roadway requirements over options with a more centralized employment base - with H6 having the most effect.

The converse of this question was also tested. Options H1 and H4 both assume a relatively large employment base within the central area - the difference being the location of population growth. Option H1 retains approximately 50% of new growth inside the Greenbelt, H4 emphasizes growth in Kanata, Orleans, and Barrhaven. With respect to roadway requirements, H1 is superior to H4 in that the amount of new road projects is reduced. However, the planning staff cannot support H1 since the majority of future residential growth must take place outside the Greenbelt if the requirements for low and medium density housing units are to be met (as explained earlier in this report).

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Related to road and transitway improvements are the costs attached to each. The strategy paper highlighted infrastructure costs as another key evaluation measure and underlined the benefits of higher modal split and employment decentralization on reducing roadway costs.

The strategy paper did not highlight other evaluative measures since they show very little meaningful difference between options. There is no clear winner with respect to "transportation performance" measures, nor is there a measureable difference in the overall degree of community impact implied by each option - other than that which is represented by the cost of infrastructure to service the option.

This reliance on costs was criticized in several briefs but it is the staff position that there is no practical way to determine with any degree of confidence the relative degree of community impact implied by each option other than the overall magnitude (cost) of the infrastructure program associated with them and the number of new dwelling units that would have to be absorbed by existing neighbourhoods.

This is, of course, of little comfort to individual community groups that may be impacted by a particular roadway project. But the basic point remains, there is no reliable way to compare the community impact of a Britannia Arterial as against a Vanier Parkway extension, as against a widening of Fisher Avenue, as against the construction of the transitway through Westboro etc unless extremely detailed designs were prepared for each project. This is not practical for the purpose of an official plan review.

The strategy discussion paper simply concludes that, in recognition that all projects impact somebody's backyard, the less overall construction required (i.e. the less disruption), the better the option is from that perspective. Cost is used as a surrogate measure of disruption.

The conclusions reached in the strategy paper, and as confirmed by the evaluation results are as follows:

- the Regional Development Strategy should be based on providing direction as to how to accommodate the "high" level of growth (i.e. the "L1" option cannot be supported);
- although the intensification of use on urban lands is supported, the majority of residential growth will need to occur outside the Greenbelt (i.e. since growth inside the Greenbelt will not occur to the level represented by the "H1" option it cannot be supported as a realistic alternative);
- the benefit of decentralizing employment is confirmed. This includes the encouragement of employment growth in areas outside the central area but inside the Greenbelt ("H8" option) and in the urban communities outside the Greenbelt (the "H6" option).

The relative benefit of designating additional lands south of the Greenbelt as opposed to expanding Orleans and Kanata beyond 100,000 was not tested directly (i.e. community sizes beyond 100,000 were not tested for Kanata and Orleans). However, community sizes of up to 60,000 were tested in the south (in Nepean). The basis for the recommendation to designate additional land in the south as against expansion of Kanata and Orleans is given above.

It is recommended that:

> **The Regional Development Strategy be based on an urban settlement pattern that recognizes the need for continued growth outside the Greenbelt, directs some of that growth south of the Greenbelt to balance transportation flows around the periphery of the Greenbelt, and encourages future employment growth to occur outside the central area.**

Protection of Natural Resources

The Regional Development Strategy disucssion paper put forward the conclusion that, in large part, agricultural resources had been preserved and that further rural growth could be permitted if firm policies were established to protect the rural resource base (including agricultural, mineral and environmental resource lands).

There was some criticism raised in the briefs of the actual track record of agricultural land protection in Ottawa-Carleton and several comments were made in support of further protection through the control of rural growth and the designation of agricultural zones.

The development of rural policies, which is the subject of a separate but related part of the official plan review, and the development of agricultural resource policies which is now underway, will provide the mechanism for addressing most of the rural issues related to agricultural lands.

With respect to mineral resource lands and environmental resource lands, these have been the subject of major planning studies in recent years resulting in amendments to the Regional Plan. Accordingly, they will not be addressed during the current official plan review.

As a strategic matter, what is important is to reconfirm the protective stance taken towards resource lands. It is therefore recommended that:

> **The Regional Development Strategy be based on the continued protection of agricultural, mineral and environmental resources and that the preparation of rural development policies during a subsequent phase of the official plan review, recognize the primary importance of these resources.**

Villages and the Extension of Urban Services

The future of various villages (eg. Stittsville, Notre Dame des Champs, Manotick) was raised in several briefs. There were comments by those in favour of restricting growth, and from those wishing to expand growth in villages.

The position taken in the Regional Plan is that village growth is largely a local planning issue. The Regional Development Strategy discussion paper, however, did highlight a growing distinction between the region's villages - based on their proximity to the urban area and the extension of piped services (sewer and water).

Although the planning for villages is still judged to be largely a local matter it is the staff's view that the extension of piped services to a village on the boundary of the urban area is of regional concern and that this signals the ultimate conversion of the village from a rural community to one of a principally urban character.

The regional concerns relate to the orderly and efficient provision of piped services and the possible impact these mini-urban centres may have on the development of other urban areas within the region. It is therefore appropriate that the decision to service such areas be a matter for Regional Council to address through its plan, and once recognized as a serviced village, these communities should be subject to the same Regional Plan policies that guide urban growth.

It is therefore recommended that:

> **The Regional Development Strategy be based on the recognition that serviced villages in close proximity to the urban area are a Regional concern and that these communities be subject to the urban development policies of the Regional Plan.**

Rural Growth

As mentioned earlier, rural development policies are the subject of a separate, but related, study within the overall official plan review exercise. The rural part of the official plan policy work is well advanced and has been the subject of numerous discussions and presentations to rural Councils and planning staff.

What has been isolated for specific attention at the "strategy stage" to this point in this present report are the questions of the impact of rural growth on the resource base and the future of certain villages lying in close proximity to the urban area.

One final strategic issue remains. This relates to the overall amount (or rate) of rural growth per se. Is it of strategic significance?

Over the past decade the rate of rural growth has fluctuated (as has the urban rate) but in rough numbers the proportion of rural to urban population has held at 1:10. The staff take the position that this ratio should be adopted, in principle, as an overall upper limit on rural growth. The 1974 Regional Plan takes the position that some amount of rural growth should be permitted for the residential accommodation of of those employed in rural economic activities, and to provide in some degree for alternative lifestyles. An overwhelming amount of growth would interfere with both. Several of the briefs presented at the public hearing touched upon the preservation of rural communities and the inability of these communities to absorb large amounts of growth while still retaining their rural flavour and values.

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With large amounts of growth in the rural area there would also be a growing problem of providing services to this population and this form of dispersed settlement pattern would lead to an overall increase in the rate of land consumption.

Therefore it is recommended that:

The Regional Development Strategy be based on the principle that overall growth in the rural areas of the region will not exceed ten percent of total regional growth.

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Summary of Recommendations

This report has attempted to respond to many of the issues raised in the submissions to the 29 May 84 public hearing concerning the Regional Development Strategy discussion paper and bring focus to the issues by advancing a series of recommendations for the consideration of Planning Committee. A decision on these issues will enable staff to finalize the strategy stage. Future work can then concentrate on the second stage of the official plan review which will result in policy development.

In summary, the staff recommendations are as follows:

1. **The Regional Development Strategy be prepared on the basis that Ottawa-Carleton could grow to between 625,000 and 725,000 persons by the turn of this century and that infrastructure be provided incrementally dependent upon the actual amount of growth which materializes through the planning period.**

2. **The Regional Development Strategy be prepared on the basis that the majority of new households to 2001 will require low and medium density ground-oriented housing, the bulk of which will be accommodated on lands outside the Greenbelt.**

3. **The Regional Development Strategy be based on the designation of sufficient additional urban lands to meet the high growth projection to 2001.**

4. **The Regional Development Strategy be based on the premise that a major growth centre (or centres) will be developed south of the Greenbelt; the future location, configuration, and the timing of its (their) release to be the subject of further study.**

5. **The Regional Development Strategy be based in general on achieving, or surpassing, the modal split guidelines contained in the 1974 Regional Plan.**

6. **The Regional Development Strategy be based on shifting the emphasis of employment growth away from the Central Area to other employment centres - with special emphasis on selected nodes along the transitway and the urban communities outside the Greenbelt.**

7. **Decisions on the Regional Development Strategy not be held in abeyance pending a review of the necessity or timing of individual infrastructure elements, but that these be reviewed in detail in the second stage of the official plan review.**

8. The Regional Development Strategy be based on an urban settlement pattern that recognizes the need for continued growth outside the Greenbelt, directs some of that growth south of the Greenbelt to balance transportation flows around the periphery of the Greenbelt, and encourages future employment growth to occur outside the central area.

9. The Regional Development Strategy be based on the continued protection of agricultural, mineral and environmental resources and that the preparation of rural development policies during a subsequent phase of the official plan review, recognize the primary importance of these resources.

10. The Regional Development Strategy be based on the recognition that serviced villages in close proximity to the urban area are a Regional concern and that these communities be subject to the urban development policies of the Regional Plan.

11. The Regional Development Strategy be based on the principle that overall growth in the rural areas of the region will not exceed ten percent of total regional growth.

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J.M. Wright
Planning Commissioner

ANNEX 1

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EVALUATION OF OPTIONS:

REGIONAL DEVELOPMENT STRATEGY

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EVALUATION OF OPTIONS

(Annex 1 to 26 June 84 Report to Planning Committee
on the Regional Development Strategy:
Conclusions and Recommendtions)

Introduction

Several of the briefs submitted to the 29 May 84 public hearing indicated that a major weakness of the Regional Development Strategy discussion paper was that it did not provide the details of the evaluation exercise (i.e. the evaluation of the various "OPTIONS", discussed in a previous report entitled: Options for Future Growth, Ottawa-Carleton, 1981-2001, April 1983.

The "Options" report (op. cit.) presented 15 specific possible allocations of population and employment levels. Nine of these were based on the same "high" projections (i.e. same regional totals) and six of these were based on the same "low" projections (i.e. same regional totals).

Of the 15 options, six were eventually selected for detailed testing and evaluation; five of which were various "high" options, and one which was a "low". (It was found that any given "low" at 2001 approximated its companion "high" forecast at 1991 - eg. L1 at 2001 was very similar to H1 at 1991).

The selected options were subject to transportation analyses and impact analyses under the aegis of an ACPAT subcommittee - the evaluation measures were developed and executed by the TRANS study team. These groups consist of representatives from the staffs of the RMOC Planning and Transportation Departments, CRO and the NCC - and in the case of ACPAT, there are representatives from MTC and MMAH as well. The cost estimates for the requisite infrastructure were developed by the region's Transportation and Works Departments.

Evaluation of broad brush options is a most difficult task since it is the impact of the option on the entire urban system - in the aggregate - that has to be measured. Unlike a route selection study that can evaluate specific road alignments within a chosen corridor in detail, the options evaluation for the Official Plan Review is much more of a "systems" analysis.

This Annex sets out the basic data related to the evaluation exercise, consisting of a brief written description of the six options that were selected for testing; a presentation of the numerical characteristics of these options (population, dwelling units and employment); followed by the evaluation measures and results; and finally, some definitions for a few of the most complex evaluation measures.

It is important to reiterate the position taken in Regional Development Strategy discussion paper. The object of testing particular Options was not to select a "winner". Rather, the testing and evaluation indicated directions (such as employment decentralization) that have benefit across the entire urban system. In this sense, several options had particular strengths - for example the concentration of dwelling units inside the Greenbelt is of benefit (to the extent it can be achieved), the decentralization of employment growth to the urban communities outside the Greenbelt is of benefit (to the extent it can be achieved), and increased transit ridership is of benefit (to the extent it can be achieved).

The bottom line is there is no clear "winner" among the options. The final development strategy should, to the extent possible, draw upon the strengths of them all.

DESCRIPTION OF OPTIONS

Six OPTIONS were selected as representative of the range of population and employment distributions which could occur by the turn of the century in the Ottawa-Carleton region.

Five OPTIONS describe the upper end of the projection spectrum and are identified by the letter "H". The variation between OPTIONS represents alternative ways of spatially distributing the projected increase between 1981 and 2001 of 176,000 persons, 90,000 dwellings and 190,000 jobs.

One OPTION identified by the letter "L" captures the lower end of the projection spectrum. This OPTION offers one alternative of spatially distributing the projected increase of 76,000 persons, 55,000 dwellings and 59,000 jobs associated with the low projection assumptions.

H1, is characterized by a large population concentrated inside of the inner limits of the greenbelt (491,000 persons) in conjunction with a large concentration of employment in the Central area of the City of Ottawa (110,000 jobs). [The Central area is bounded by Bronson, Gloucester, Laurier east of the canal, King Edward, St. Patrick and the Ottawa River].

H4, is characterized by a large population in the east (Orleans) and west (Kanata) urban communities (100,000 in each), in combination with centralized employment concentrated in the Central area of the City of Ottawa (110,000 jobs).

H6, is characterized by a large population in the east (Orleans) and west (Kanata) urban communities (100,000 each) combined with large employment (35,000 jobs) in these communities.

H7, is characterized by significant growth in the south urban community, in this case in South Nepean (62,000 persons), combined with centralized employment, concentrated in the Central area of the City of Ottawa (110,000 jobs).

H8, is characterized by significant growth in the south urban community, in South Nepean (62,000 persons), combined with decentralized employment growth within the inner limits of the Greenbelt but outside the Greater Central area of the City of Ottawa. [The Greater Central area is bounded by Bronson, Queensway, Rideau River and the Ottawa River].

L1, is characterized by a much smaller overall level of growth. Almost half of the increase in dwellings is located inside the inner limits of the Greenbelt. This population and dwelling distribution is combined with centralized employment, concentrated in the Central Area of the City of Ottawa [i.e. this OPTION is similar to the H1 OPTION, except that it is based on a lower level of projected population, dwellings and employment].

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CHARACTERISTICS OF OPTIONS

MEASURE	BASE YEAR 1981	OPTION (YEAR 2001)					
		L1/L	H1/H	H4/H	H6/H	H7/H	H8/H
POPULATION, DWELLINGS AND EMPLOYMENT CHARACTERISTICS							
I. POPULATION R.M.O.C. TOTAL	546,900	623,595	725,595	729,124	729,124	727,015	727,015
TOTAL INSIDE THE GREENBELT	443,100	452,470	490,930	451,012	451,012	451,012	451,102
. CENTRAL AREA	4,203	6,812	7,419	7,545	7,545	7,545	7,545
. GREATER CENTRAL AREA	44,003	44,694	45,590	45,107	45,107	45,107	45,107
TOTAL OUTSIDE THE GREENBELT	103,800	170,740	234,665	278,112	278,112	199,453	199,453
. EAST URBAN COMMUNITY	23,300	51,935	68,706	96,100	96,100	76,550	76,550
. WEST URBAN COMMUNITY	18,500	41,530	73,117	96,998	96,998	76,565	76,565
. SOUTH URBAN COMMUNITY	8,700	17,218	21,563	22,001	22,001	62,000	62,000
. RURAL	53,300	60,057	71,279	63,013	63,013	60,885	60,888
II. DWELLINGS (TOTAL)	201,553	256,248	291,929	291,123	291,123	290,489	290,489
TOTAL INSIDE THE GREENBELT	170,338	197,863	211,893	195,038	195,038	195,053	195,053
. CENTRAL AREA	2,644	4,436	4,917	4,909	4,909	4,090	4,909
. GREATER CENTRAL AREA	23,874	26,337	26,792	26,544	26,544	26,544	26,544
TOTAL OUTSIDE THE GREENBELT	31,215	58,385	80,036	96,085	96,085	95,436	95,436
. EAST URBAN COMMUNITY	6,624	17,602	23,339	32,065	32,065	25,740	25,740
. WEST URBAN COMMUNITY	5,320	13,845	24,698	34,975	28,175	28,175	28,175
. SOUTH URBAN COMMUNITY	2,653	5,893	7,387	7,327	7,327	19,795	19,795
. RURAL	16,618	21,045	24,621	21,718	21,718	21,726	21,726
TOTAL UNITS ADDED BY 2001	-	54,659	90,376	89,570	89,570	88,936	88,936
. TOTAL ADDED INSIDE GREENBELT	-	27,525	41,555	24,700	24,700	24,715	24,715
. TOTAL ADDED OUTSIDE GREENBELT	-	27,170	48,821	64,870	64,870	64,221	64,221
TOTAL GROUND-ORIENTED UNITS	128,872	166,982	190,617	193,491	193,491	192,865	192,865
TOTAL INSIDE THE GREENBELT	97,984	111,751	115,704	108,134	108,134	108,134	108,134
. CENTRAL AREA	300	300	302	300	300	300	300
. GREATER CENTRAL AREA	4,758	4,799	5,000	4,758	4,758	4,758	4,758
TOTAL OUTSIDE THE GREENBELT	30,888	55,231	74,913	85,357	85,357	84,731	84,731
. EAST URBAN COMMUNITY	6,584	16,062	21,429	29,680	29,680	23,590	23,590
. WEST URBAN COMMUNITY	5,238	13,093	22,716	27,409	27,409	21,025	21,025
. SOUTH URBAN COMMUNITY	2,653	5,263	6,502	6,855	6,855	18,695	18,695
. RURAL	16,413	20,813	24,266	21,413	21,413	21,421	21,421
TOTAL GROUND-ORIENTED UNITS ADDED BY 2001	-	38,110	61,745	64,619	64,619	63,993	63,993
. TOTAL ADDED INSIDE GREENBELT	-	13,767	17,720	10,150	10,150	10,150	10,150
. TOTAL ADDED OUTSIDE GREENBELT	-	24,343	44,025	54,469	54,469	53,843	53,843
TOTAL NON GROUND-ORIENTED UNITS	72,681	89,266	101,321	97,632	97,632	97,624	97,624
TOTAL INSIDE THE GREENBELT	72,354	86,112	96,189	86,904	86,904	86,919	86,919
. CENTRAL AREA	2,344	4,136	4,615	4,609	4,609	4,609	4,609
. GREATER CENTRAL AREA	19,116	21,538	21,792	21,786	21,786	21,786	21,786

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CHARACTERISTICS OF OPTIONS (cont'd)

MEASURE	BASE YEAR 1981	OPTION (YEAR 2001)					
		L1/L	H1/H	H4/H	H6/H	H7/H	H8/H
POPULATION, DWELLINGS AND EMPLOYMENT CHARACTERISTICS							
II. DWELLINGS (TOTAL) (cont'd)							
TOTAL OUTSIDE THE GREENBELT	327	3,154	5,132	10,728	10,728	10,705	10,705
. EAST URBAN COMMUNITY	40	1,540	1,910	2,385	2,385	2,150	2,150
. WEST URBAN COMMUNITY	82	752	1,982	7,566	7,566	7,150	7,150
. SOUTH URBAN COMMUNITY	-	630	885	472	472	1,100	1,100
. RURAL	205	232	355	305	305	305	305
TOTAL NON GROUND-ORIENTED UNITS ADDED BY 2001	-	16,585	28,640	24,951	24,951	24,943	24,943
. TOTAL ADDED INSIDE GREENBELT	-	13,758	23,835	14,550	14,550	14,565	14,565
. TOTAL ADDED OUTSIDE GREENBELT	-	2,827	4,805	10,401	10,401	10,378	10,378
III. EMPLOYMENT							
TOTAL (RMOC)	293,700	353,000	443,000	443,000	442,960	443,310	443,000
TOTAL INSIDE GREENBELT	272,400	322,000	393,800	387,870	350,660	389,110	390,690
. CENTRAL AREA	68,883	88,000	110,000	110,000	93,310	110,000	88,000
. GREATER CENTRAL AREA	102,600	126,000	150,000	150,000	134,960	150,000	126,000
TOTAL OUTSIDE GREENBELT	21,300	31,000	49,200	55,130	92,300	54,200	52,310
. EAST URBAN COMMUNITY	2,300	5,000	8,000	11,000	35,000	10,000	10,000
. WEST URBAN COMMUNITY	7,200	13,000	20,000	23,000	35,000	21,000	21,000
. SOUTH URBAN COMMUNITY	500	1,000	6,000	6,000	7,300	9,000	9,000
. RURAL	11,300	12,000	15,200	15,130	15,000	14,200	12,310

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OPTIONS EVALUATION MEASURES

MEASURE	BASE YEAR 1981	OPTION (YEAR 2001)					
		L1/L	H1/H	H4/H	H6/H	H7/H	H8/H
A. TRANSPORTATION SYSTEM PERFORMANCE MEASURES							
I. AVERAGE WEEKDAY TRIP LENGTH DISTRIBUTION							
. P.M. PEAK HOUR AUTO - MINUTES	23.1	22.7	23.4	23.7	23.7	23.7	23.5
. P.M. PEAK HOUR AUTO - KILOMETRES	9.7	10.4	10.8	11.0	10.9	11.1	11.0
. P.M. PEAK HOUR TRANSIT - MINUTES	31.9	31.8	32.4	32.9	32.6	32.5	33.7
. P.M. PEAK HOUR TRANSIT - KILOMETRES	7.4	8.0	8.3	8.8	8.5	8.5	8.9
. 24 HOUR AUTO - MINUTES	20.6	20.3	20.9	21.2	21.1	21.2	21.2
. 24 HOUR AUTO-KILOMETRES	8.7	9.3	9.6	9.8	9.7	9.9	9.9
II. TOTAL ANNUAL WEEKDAY VEHICLE HOURS OF TRAVEL (MILLIONS OF VEHICLE HOURS)							
. P.M. PEAK HOUR AUTO	8.5	10.5	12.6	12.8	13.0	12.9	12.8
P.M. PEAK HOUR TRANSIT	0.1	0.2	0.2	0.2	0.2	0.2	0.2
. 24 HOUR AUTO	111	134	159	161	161	161	163
III. TOTAL ANNUAL WEEKDAY VEHICLE KILOMETRES OF TRAVEL (MILLIONS OF VEHICLE-KILOMETRES)							
. P.M. PEAK HOUR AUTO	215	290	349	357	358	362	359
. P.M. PEAK HOUR TRANSIT	2.0	2.6	3.0	3.2	2.9	2.9	3.1
. 24 HOUR AUTO	2,820	3,702	4,401	4,498	4,453	4,520	4,573
IV. TOTAL ANNUAL WEEKDAY FUEL CONSUMPTION (MILLIONS OF LITRES)							
. P.M. PEAK HOUR AUTO	41	53	64	65	65	66	65
. P.M. PEAK HOUR TRANSIT	3.3	4.3	5.0	5.3	5.0	4.9	5.1
V. TOTAL ANNUAL WEEKDAY AIR POLLUTANT EMISSIONS (THOUSANDS OF TONNES)							
. CARBON MONOXIDE EMISSIONS IN P.M. PEAK HOUR	10.0	12.7	15.3	15.6	15.7	15.7	15.5
. CARBON MONOXIDE EMISSIONS - 24 HOUR BASIS	130	162	192	196	195	196	198
. HYDRO CARBON EMISSIONS IN IN P.M. PEAK HOUR	0.6	0.8	0.9	0.9	0.9	0.9	0.9
. HYDRO CARBON EMISSIONS - 24 HOUR BASIS	7.7	9.7	11.5	11.7	11.6	11.7	11.8
VI. P.M. PEAK HOUR MODAL SPLIT							
. TOTAL P.M. PEAK HOUR TRANSIT TRIPS	51,500	62,500	69,200	69,400	67,700	67,000	67,000
. OVERALL P.M. PEAK HOUR MODAL SPLIT (%)	30	30	30	30	30	30	30
TOTAL P.M. PEAK HOUR MODAL SPLIT (%) BY TRIP PURPOSE							
. HOME-BASED WORK TRIPS	36	37	37	37	37	37	37
. HOME-BASED OTHER TRIPS	25	26	25	25	25	25	25
. NON HOME-BASED TRIPS	6	6	6	6	6	6	6

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OPTIONS EVALUATION MEASURES

MEASURE	BASE YEAR 1981	OPTION (YEAR 2001)					
		L1/L	H1/H	H4/H	H6/H	H7/H	H8/H
A. TRANSPORTATION SYSTEM PERFORMANCE MEASURES (cont'd)							
VI. P.M. PEAK HOUR MODAL SPLIT(cont'd)							
P.M. PEAK HOUR OUTBOUND MODAL SPLIT BY SCREENLINE (%)							
. RIDEAU RIVER NORTH	25	25	25	25	25	25	25
. RIDEAU RIVER CENTRAL	36	37	37	37	37	37	38
. RIDEAU RIVER SOUTH	14	14	14	14	14	17	15
. RIDEAU CANAL	38	39	39	39	38	38	38
. EAGLESON SIDE ROAD	13	21	25	30	27	28	26
. WESTERN PARKWAY/WOODROFFE	27	27	28	28	27	28	27
. CPR	44	45	44	45	44	44	45
. GREEN CREEK	26	29	29	31	28	39	29
. CNR WEST	23	23	23	23	23	25	25
. FALLOWFIELD	12	15	15	15	17	16	17
. CNR EAST-WALKLEY ROAD	18	21	21	21	23	23	23
. LEITRIM-RAMSAYVILLE	0	0	0	0	0	0	0
. OTTAWA RIVER	22	22	22	22	22	22	22
VII. TRANSIT EFFICIENCY		NOT RESOLVED					
VIII. ACCESSIBILITY		RANKED APPROXIMATELY EQUAL					
IX. P.M. PEAK HOUR AUTO VEHICLE VOLUME TO CAPACITY RATIO BY SCREENLINE							
. RIDEAU RIVER NORTH	0.42	0.63	0.67	0.65	0.63	0.60	0.60
. RIDEAU RIVER CENTRAL	0.86	0.93	1.03	1.03	0.96	0.98	0.96
. RIDEAU RIVER SOUTH	0.90	0.68	0.82	0.80	0.75	0.89	0.96
. RIDEAU CANAL	0.85	0.94	1.06	1.03	0.94	1.04	0.94
. EAGLESON SIDE ROAD	0.60	0.64	0.87	0.99	0.87	0.87	0.90
. WESTERN PARKWAY/WOODROFFE	0.89	1.17	1.40	1.44	1.37	1.37	1.35
. CPR	0.74	0.80	0.91	0.92	0.89	0.96	0.89
. GREEN CREEK	0.64	1.10	1.35	1.62	1.17	1.38	1.40
. CNR WEST	0.73	0.64	0.69	0.65	0.62	0.91	0.78
. FALLOWFIELD	0.38	0.41	0.46	0.45	0.42	0.89	0.72
. CNR EAST-WALKLEY ROAD	0.50	0.78	0.94	0.72	0.70	0.84	0.80
. LEITRIM-RAMSAYVILLE	0.21	0.27	0.30	0.28	0.27	0.28	0.28
. OTTAWA RIVER	0.64	0,71	0.88	0.88	0.88	0.88	0.88

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OPTIONS EVALUATION MEASURES

MEASURE	BASE YEAR 1981	OPTION (YEAR 2001)					
		L1/L	H1/H	H4/H	H6/H	H7/H	H8/8
B. LAND USE/TRANSPORTATION IMPACT							
. LOSS OF OPEN SPACE . LOSS OF PARKLAND . IMPACT ON SOCIAL PATTERNS . IMPACT ON LOCAL STREET SYSTEM . AESTHETIC QUALITY (COMPATIBILITY WITH LAND USES)		SEE PAGES (ix) and (x)					
C. TRANSPORTATION IMPLEMENTATION		NOT RESOLVED					
D. TRANSPORTATION COSTS IN MILLION $	TO MEET EXISTING NEEDS (1983)						
I. TOTAL TRANSPORTATION COSTS	355	570	760	829	770	800-850	800-850
. INCREASE IN COST RELATED TO GROWTH	-	215	405	474	415	445-495	445-495
II. TOTAL TRANSPORTATION COSTS INSIDE THE INNER LIMITS OF THE GREENBELT	351.4	453.4	478.4	483.4	478.4	478.4	478.4
. INCREASE IN COST RELATED TO GROWTH	-	102	127	132	127	127	127
III. TOTAL TRANSPORTATION COSTS THROUGH AND OUTSIDE THE GREENBELT	3.6	116.6	281.6	345.6	291.6	321.6-371.6	321.6-371.6
. INCREASE IN COST RELATED TO GROWTH	-	113	278	342	288	318-368	318-368
IV. TOTAL ROAD IMPROVEMENT COSTS	155	330	450	519	460	490	490
. INCREASE IN COST RELATED TO GROWTH	-	175	295	364	305	335	335
V. TOTAL ROAD IMPROVEMENT COSTS INSIDE THE INNER LIMITS OF THE GREENBELT	151.4	213.4	238.4	243.4	238.4	238.4	238.4
. INCREASE IN COST RELATED TO GROWTH	-	62	87	92	87	87	87
VI. TOTAL ROAD IMPROVEMENT COSTS THROUGH AND OUTSIDE THE GREENBELT	3.6	116.6	211.6	275.6	221.6	251.6	251.6
. INCREASE IN COST RELATED TO GROWTH	-	113	208	272	218	248	248
VII. TOTAL TRANSITWAY COSTS	200	240	310	310	310	310-360	310-360
. INCREASE IN COST RELATED TO GROWTH	-	40	110	110	110	110-160	110-160
VIII. TOTAL TRANSITWAY COSTS INSIDE THE INNER LIMIT OF THE GREENBELT	200	240	240	240	240	240	240
. INCREASE IN COST RELATED TO GROWTH	-	40	40	40	40	40	40

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OPTIONS EVALUATION MEASURES

MEASURE	BASE YEAR	OPTION (YEAR 2001)					
		L1/L	H1/H	H4/H	H6/H	H7/H	H8/8
D. TRANSPORTATION COSTS IN MILLION $ (cont'd)	TO MEET EXISTING NEEDS (1983)						
IX. TOTAL TRANSITWAY COSTS THROUGH AND OUTSIDE THE GREENBELT	-	-	70	70	70	70-120	70-120
. INCREASE IN COST RELATED TO GROWTH	-	-	70	70	70	70-120	70-120
E. TOTAL INCREMENTAL COSTS ASSOCIATED WITH SEWAGE TREATMENT-PLANT EXPANSION, SEWERS, WATER SYSTEM AND SECONDARY TREATMENT IN MILLION $	22.95	190.4	213.4	215.7	215.7	242.4	242.4
I. SEWAGE TREATMENT-PLANT EXPANSION COSTS (MILLION $)							
. TOTAL COSTS	-	30.5	30.5	30.5	30.5	30.5	30.5
. INSIDE THE GREENBELT	-	16.7	15.4	8.9	8.9	9.0	9.0
. WEST URBAN COMMUNITY	-	5.2	7.2	10.7	10.7	8.3	8.3
. SOUTH URBAN COMMUNITY	-	2.0	1.7	1.7	1.7	6.2	6.2
. EAST URBAN COMMUNITY	-	6.6	6.2	9.2	9.2	7.0	7.0
II. SEWER COSTS (MILLION $)							
. TOTAL COSTS	-	65.0	66.0	66.8	66.8	82.0	82.0
. INSIDE THE GREENBELT	-	8.4	8.4	8.4	8.4	8.4	8.4
. WEST URBAN COMMUNITY	-	33.3	34.3	35.1	35.1	34.3	34.3
. SOUTH URBAN COMMUNITY	-	23.3	23.3	23.3	23.3	39.3	39.3
. EAST URBAN COMMUNITY	-	-	-	-	-	-	-
III. WATER TREATMENT EXPANSION COSTS (MILLION $)							
. TOTAL COSTS	22.95	36.5	58.5	60.0	60.0	71.5	71.5
. INSIDE THE GREENBELT	20.0	20.0	20.0	20.0	20.0	20.0	20.0
. WEST URBAN COMMUNITY	0.3	0.5	16.5	18.0	18.0	16.5	16.5
. SOUTH URBAN COMMUNITY	1.6	7.0	7.0	7.0	7.0	20.0	20.0
. EAST URBAN COMMUNITY	1.05	9.0	15.0	15.0	15.0	15.0	15.0
IV. SECONDARY TREATMENT COSTS (MILLION $)							
. TOTAL COSTS	-	50.0	50.0	50.0	50.0	50.0	50.0
. INSIDE THE GREENBELT	-	42.1	39.7	35.8	35.8	36.3	36.3
. WEST URBAN COMMUNITY	-	2.9	4.6	6.5	6.5	5.2	5.2
. SOUTH URBAN COMMUNITY	-	1.3	1.4	1.4	1.4	3.7	3.7
. EAST URBAN COMMUNITY	-	3.7	4.3	6.0	6.0	4.8	4.8

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OPTIONS EVALUATION MEASURES

IMPACT OF INCREMENTAL TRANSPORTATION SOLUTIONS ON LAND USE (LAND USE/TRANSPORTATION IMPACT)

The provision of additional transportation capacity especially through the construction of new road links or the widening of existing roadways can impact heavilly on the social and physical environment.

The TRANS study team comprised of technical representatives from the Ottawa-Carleton Planning and Transportation Departments, the National Capital Commission and the Communauté Régionale de l'Outaouais attempted to evaluate the performance of the various OPTIONS with respect to the impacts that transportation solutions might have on the social and physical environment in the Ottawa-Carleton region.

A subjective rating scale was used to evaluate the perceived social and physical impacts resulting from the introduction of the different transportation network solutions necessitated by various OPTIONS. The rating was from one to five where "one" indicated the least impact and "five" indicated the highest negative impact (in relative terms).

Five qualitative categories of impact were determined:

1) the loss of open space resulting from either expansion to existing facilities or the construction of new facilities;

2) the loss of park land (similar to 1);

3) the impact on the local street system;

4) the impact on social patterns, and;

5) the compatibility of the transportation solution with existing land uses.

The rating scores for OPTIONS L1, H1, H4, H6 and H7 are shown in Table 1. H8 was not available at the time the evaluation was being conducted by the TRANS team.

It must be underlined that certain transportation network improvements were considered to be in place by the year 2001 as part of the TRANS model input assumptions. Thus certain controversial facilities such as the Vanier Parkway extension were assumed for transportation modelling purposes to be part of the 2001 transportation road network (a complete list of those facilities required to bring the road system up to standard or common to all High Options is provided at Tables 5 and 6 in the Transportation Department's report - May 84). Therefore, the impact scores shown in Table 1 relate only to those additional transportation elements required by an OPTION over the assumed 2001 road and transit network. These additional facilities were based on noted deficiencies in road capacity after attaining the revised policy guideline modal splits or were required for transportation operational network integrity. (See the Transportation Department's report entitled: Transportation Component of the Regional Development Strategy, May 84, for more information).

The scores shown in Table 1 indicate that overall the least impact is associated with the low projection OPTION L1; this is not unexpected.

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Of the high projection OPTIONS H6 appears to impact the least on the social and physical environment overall* while OPTION H4 displays the highest impact. The difference between OPTIONS H4 and H6 is not population level (both assume an East and West urban community of 100,000 persons) but the assumed level of employment. H6 assumes 35,000 jobs in the East and West while H4 assumes 11,000 jobs in the East and 23,000 jobs in the west. Clearly, if the communities achieve the population and employment relationship of the H6 Option, fewer transportation facilities are required. If this relationship is not achieved then more facilities are required with the concommitant increase in social and physical environmental impacts.

TABLE 1

IMPACT OF INCREMENTAL TRANSPORTATION SOLUTIONS

RATING SOURCES

		OPTIONS				
MEASURE	L1	H1	H4	H6	H7	H8[1]
LOSS OF OPEN SPACE SPACE	1	3	5	2	4	-
LOSS OF PARKLAND	1	3	5	2	4	-
IMPACT ON SOCIAL PATTERNS	3	3	3	2	2	-
IMPACTS ON LOCAL STREET SYSTEM	3	4	2	3	3	-
AESTHETIC QUALITY (COMPATIBILITY WITH LAND USES)	2	4	4	2	3	-
TOTALS	10	17	19	11	16	-

[1]Not evaluated

RATING SCALE

1 — 5

LOWEST IMPACT — HIGHEST IMPACT

*It is important to stress that these scores indicate overall impact across all neighbourhoods; they are aggregate scores.

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DEFINITIONS: TRANSPORTATION SYSTEM PERFORMANCE MEASURES

I. AVERAGE WEEKDAY TRIP LENGTH DISTRIBUTION

A reflection of the amount of road and transit network that must be supplied for each OPTION. Average T.L.D. is considered only for weekday conditions, since relatively fewer Saturday and Sunday trips are work based. Therefore, system-wide congestion normally does not occur on these two days. Average trip length distribution is measured with respect to travel time (minutes) and travel distance (kilometres). Average trip length distributions are calculated for total person trips made on a 24 hour basis, total afternoon peak hour auto vehicle trips and afternoon peak hour transit person trips. (Note that trip length is independent of the type of vehicle in which the trip is made).

II. TOTAL ANNUAL WEEKDAY VEHICLE HOURS OF TRAVEL

This measure is a function of the average travel time T.L.D. for each of the three trip categories. The categories are: afternoon peak hour auto trips, afternoon peak hour transit trips and all auto trips on a 24 hour basis. The measure is considered only for weekday conditions. It represents the total amount of in-vehicle travel for a given year, where only the weekdays are considered. As can be expected the figure is quite large.

III. TOTAL ANNUAL WEEKDAY VEHICLE KILOMETRES OF TRAVEL

Analogous to II - total annual weekday vehicle hours of travel but taken with respect to travel distance T.L.D's again, the figure is quite large.

IV. TOTAL ANNUAL WEEKDAY FUEL CONSUMPTION

Energy usage is measured by litres of fuel consumed for each trip category (auto and transit). The period is one year - all weekdays. The calculation is only made for the afternoon peak hour driving period.

V. TOTAL ANNUAL WEEKDAY AIR POLLUTANT EMISSIONS

The amount of vehicle-produced air pollution measured in tonnes for the total weekdays in a year. Two types of emissions are considered - carbon monoxide and hydrocarbons. The amount produced is calculated for a 24 hour basis and for the afternoon peak hour.

VI. P.M. PEAK HOUR MODAL SPLIT

Transit ridership in the afternoon peak hour is expressed in four ways:

1) Total afternoon peak hour transit trips made in the study area.

2) Total afternoon peak hour modal split (or transit share) is the total proportion transit trips comprise expressed as a percentage, of all trips (transit + auto person trips).

3) Total afternoon peak hour modal split by trip purpose. Three types of trips are considered: Home-based work trips, home-based other trips, and non home-based trips. The proportion transit trips comprise of total trips by purpose is calculated for each of the trip purposes.

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4) Total afternoon peak hour modal split is calculated for each of 13 strategic screenlines in Ottawa-Carleton.

Modal split is the percent of trips made by transit. A screenline is an imaginary line, drawn across one or more roads or transitways. Screenlines are located strategically throughout the study area and are used as convenient points to monitor travel and discern travel patterns.

VII. P.M. PEAK HOUR AUTO VEHICLE VOLUME TO CAPACITY RAITO BY SCREENLINE

The volume to capacity of a particular road or screenline is an important road system efficiency measure. The traffic volume expected to use the road or roads comprising a screenline is compared to the vehicular capacity of the road or screenline. The service standard used in the Official Plan review is defined as the point (for each road or screenline) at which the ratio of volume to capacity is 0.90. A deficiency occurs when existing or projected volume on a road or screenline exceeds 90% of capacity. This deficiency results in increase traffic congestion and ultimately to increase in costs; not just in supplying new roads but costs can be measured in terms of travel time, fuel consumed and pollution generated.

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